PROC. BIOL. SOC. WASH.
98(3), 1985, pp. 678–681

A NEW SPECIES OF *SCOLELEPIS* (POLYCHAETA: SPIONIDAE) FROM LIZARD ISLAND, AUSTRALIA

Daniel M. Dauer

Abstract.—A new species of Spionidae, *Scolelepis hutchingsae* from Lizard Island, Australia is described. *Scolelepis hutchingsae* belongs to the *Scolelepis* species-complex having notosetae on setiger 1, posterior neuropodial lamellae bilobed, and hooded hooks principally or exclusively bidentate. The most distinctive characteristic of this new species is that notopodial hooded hooks begin in the same setiger or at most one setiger after the neuropodial hooded hooks; similar *Scolelepis* species have notopodial hooded hooks beginning as least 10 and usually 20 or more setigers after the appearance of the neuropodial hooded hooks.

As part of my research interest in the functional morphology and feeding behavior of spionid polychaetes (Dauer et al. 1981; Dauer 1983, 1984, 1985), I had the opportunity to collect and observe two spionid polychaete species from Lizard Island, Australia (14°40′S, 145°27′E). One of the spionids studied is an undescribed species of *Scolelepis* which is herein described. The most recent and important studies of Australian Spionidae are those of Blake and Kudenov (1978), Hartmann-Schröder (1980, 1981, 1982) and Hutchings and Turvey (1984).

Type-materials are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Scolelepis hutchingsae, new species

Fig. 1

Material examined.—AUSTRALIA, Lizard Island, Ferrier's Creek, northern Great Barrier Reef, 19 Jul 1983, coralline sand, holotype (USNM 97629), 2 paratypes (USNM 97630, 97631).

Description.—Length of holotype approximately 14 mm, width 1 mm, 59 setigers, complete specimen. One paratype complete, 18 mm long, 77 setigers; other paratype incomplete, 8.5 mm long, 50 setigers.

Prostomium pointed anteriorly, slightly inflated laterally near junction with prostomium (Fig. 1A). No occipital antenna, no eyes. Prostomium extending to first setiger, dorsally elevated at posterior margin. Eversible pharynx saclike, highly ciliated. Peristomium well developed, partially overlapping prostomium. Palps removed from all specimens for scanning electron microscopy study of ciliary patterns (in preparation).

Branchiae begin on setiger 2, fused to notopodial lamellae for approximately half its length in anterior setigers (Fig. 1B) and for approximately one-third of its length in posterior setigers (Fig. 1C). Dorsal portion of notopodial lamellae forming slight lobate projection in posterior setigers (Fig. 1C). Anterior neuropodial lamellae rounded (Fig. 1B), becoming elongate and ridge-like on setigers with hooded hooks. Slight indentation in neuropodial lamellae beginning on setigers

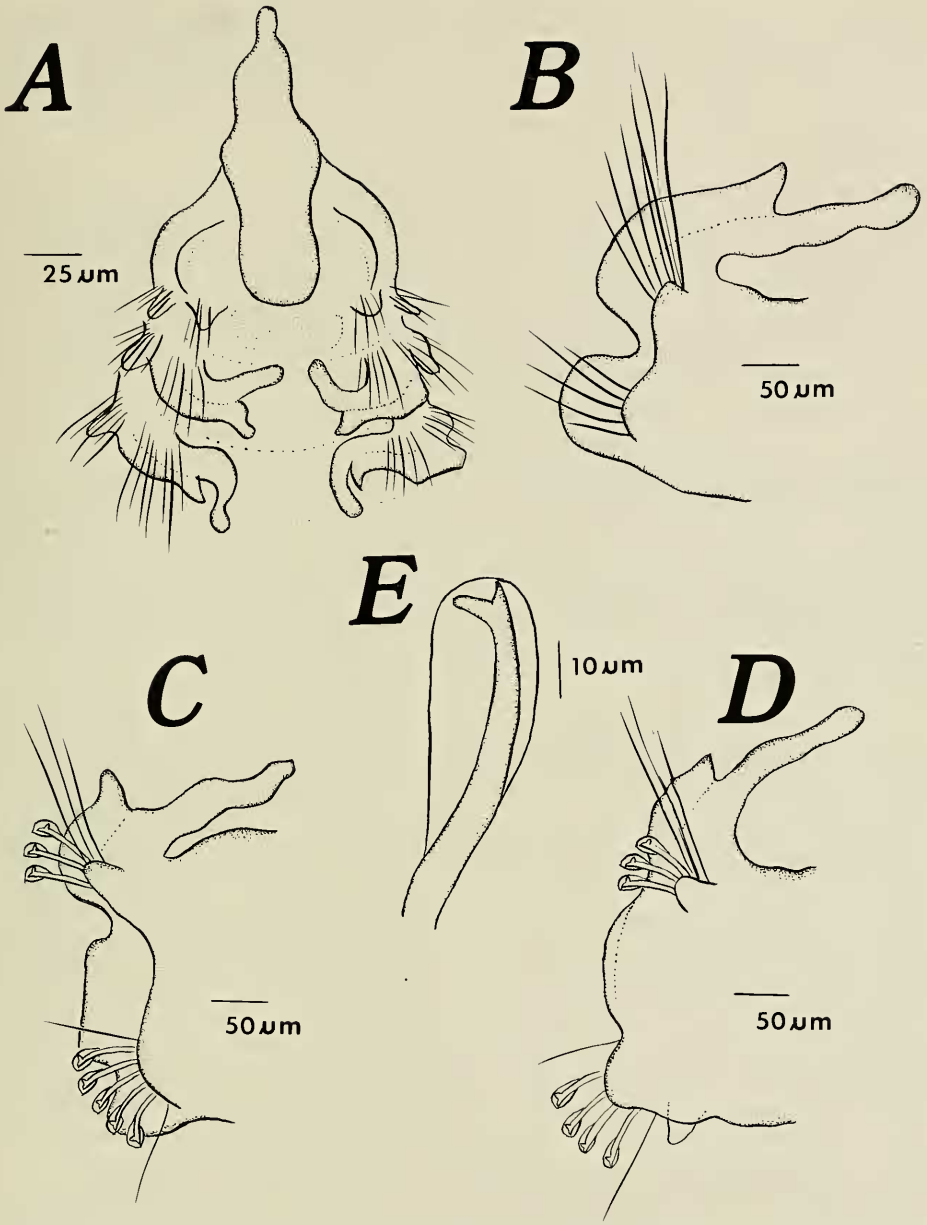

Fig. 1. *Scolelepis hutchingsae* (paratype, USNM 97630): A, Anterior end, palps omitted; B, Setiger 5 in anterior view; C, Setiger 35 in anterior view; D, Far posterior setiger in anterior view; E, Hooded hook, lateral view.

24–26. Small ventral cirrus present from setigers 45–50. Neuropodial lamellae gradually increase in transverse length (dorso-ventral axis) from average of 43.3 µm (range 37–58 µm) in first setiger to approximately 200 µm (range 153–232 µm) by setiger 10 or 11. Lamellar size remains same until appearance of hooded hooks in setigers 18–20 where lamellae increase greatly in size to average of 325

μm (range 280–428 μm); remaining this size for at least following 20 setigers. With appearance of hooded hooks, change in neuropodial lamellar size quite dramatic. For example, on right side of complete paratype, neuropodial hooks first appear in setiger 19 and neuropodial lamella increases in size from 240 μm to 400 μm from setiger 18 to 19.

Notosetae present on setiger 1. In anterior setigers 18–20 capillary setae in 2 transverse rows ranging from 180–400 μm in length and 6–7 μm in maximum width. Longest notosetae located dorsally and shortest ventrally in each fascicle. Notopodial hooded hooks bidentate (Fig. 1E), beginning in setigers 18–20 and continue to the end of the body. Notopodial fascicles of setigers with hooded hooks in single transverse row. Three to 4 hooded hooks and 4–8 capillary setae in notopodial fascicles of middle and posterior setigers. Notopodial capillary setae of setigers with hooded hooks usually long (up to 400 μm), thinner than anterior notopodial capillary setae (maximum width 4–5 μm).

Capillary setae only in neuropodia of anterior setigers in 2 transverse rows, bidentate hooded hooks beginning in setigers 18–20. Neuropodial fascicles of middle and posterior setigers in single transverse row, typically with 4–8 hooded hooks and 2 capillary setae—one in dorsal and one in ventral position of fascicle.

Pygidium ventral, a flat cushion around dorsal anus. One complete specimen with ciliated lobes located around anus, another complete specimen without any additional lobes. Lobes appear to be eversible rectal structures.

Remarks.—*Scolelepis hutchingsae* is most similar to *S. squamata* (Muller, 1806), *S. blakei* Hartmann-Schröder, 1980, and *S. bifida* Hutchings and Turvey, 1984 in (1) the presence of notosetae on setiger 1, (2) neuropodial lamellae bilobed posteriorly, and (3) hooded hooks principally or exclusively bidentate. *Scolelepis bifida* differs by the fusion of the notopodial lamellae along almost the entire length of the branchia, neuropodial hooded hooks that begin in setigers 32–36 and notopodial hooded hooks which were not present in the holotype which was 93 setigers long (no comment on notopodial hooded hooks in paratypes). *Scolelepis blakei* is easily separated by its trifid prostomium, neuropodial hooded hooks begin in setiger 29 and notopodial hooded hooks that are tridentate and begin around setiger 75. *Scolelepis squamata* (sensu Foster, 1971, with synonymies) differs in that neuropodial hooded hooks begin later, in setigers 25–40, notopodial hooded hooks are not always present, and when present they start at least 10 and usually 20 or more setigers after the neuropodial hooks. The interramal portion of the neuropodial lamellae of *S. squamata* projects from the body much more than *S. hutchingsae* and is a low ridge in posterior setigers of the latter.

Etymology.—This species is named for Dr. Pat Hutchings in recognition of her contribution to our knowledge of Australian polychaetes.

Distribution.—Known only from intertidal coralline sands on Lizard Island, Australia.

Acknowledgments

I wish to thank Pat Hutchings for the opportunity to visit and use the facilities of the Lizard Island Research Station and to Barry and Louis Goldman for their help and hospitality during my stay at Lizard Island. I am grateful to Dr. James A. Blake for taxonomic advice and especially Dr. Nancy J. Maciolek for examining

the present specimens and offering helpful taxonomic advice. Mike Ewing helped collect the specimens and provided useful comments and advice during the preparation of this manuscript.

Literature Cited

Blake, J. A., and J. D. Kudenov. 1978. The Spionidae (Polychaeta) from southeastern Australia and adjacent areas with a revision of the genera.—Memoirs of the National Museum of Victoria 39:171–280.

Dauer, D. M. 1983. Functional morphology and feeding behavior of *Scolelepis squamata* (Polychaeta: Spionidae).—Marine Biology 77:279–285.

———. 1984. Functional morphology and feeding behaviour of *Streblospio benedicti* (Polychaeta; Spionidae).—Proceedings of the First International Polychaete Conference, Sydney, edited by P. A. Hutchings, published by The Linnean Society of New South Wales. Pp. 418–429.

———. 1985. Functional morphology and feeding behavior of *Paraprionospio pinnata* (Polychaeta: Spionidae).—Marine Biology 85:143–151.

———, C. A. Maybury, and R. M. Ewing. 1981. Feeding behavior and general ecology of several spionid polychaetes from the Chesapeake Bay.—Journal of Experimental Marine Biology and Ecology 54:21–38.

Foster, N. M. 1971. Spionidae (Polychaeta) of the Gulf of Mexico and the Caribbean Sea.—Studies on the Fauna of Curaçao and Other Caribbean Islands 36:1–183.

Hartmann-Schröder, G. 1980. Die Polychaeten der tropischen Nordwestkuste Australiens (zwischen Port Samson im Norden und Exmouth im Suden).—Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut 77:41–110.

———. 1981. Die Polychaeten der tropischen-subtropischen Westkuste Australiens (zwischen Exmouth im Norden und Cervantes im Suden).—Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut 78:19–96.

———. 1982. Die Polychaeten der subtropischanti-borealen Westkuste Australiens (zwischen Cervantes im Norden und Cape Naturaliste im Suden).—Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut 79:51–118.

Hutchings, P. A., and S. P. Turvey. 1984. The Spionidae of South Australia (Annelida: Polychaeta).—Transactions of the Royal Society of South Australia 108:1–20.

Department of Biological Sciences, Old Dominion University, Norfolk, Virginia 23508.